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Demonstrations to Illustrate the Modification and Control of Behavior of Characters in Crossing: W. L. TOWER.

Photographs Illustrating the Regenerative Power of the Somatic Cells of Sponges after Removal from the Parent: H. V. WILSON.

Specimens of the 900th Generation of Paramecium, Attained without Artificial Stimulation or Conjugation: L. L. WOODRUFF.

LORANDE LOSS WOODRUFF,
Secretary

YALE UNIVERSITY

SOCIETIES AND ACADEMIES

THE BIOLOGICAL SOCIETY OF WASHINGTON

THE 453d meeting was held January 23, 1909, with President Palmer in the chair. Several informal notes were presented. Mr. F. E. Matthes offered some notes on snow and winter insects collected in the vicinity of Washington. Among the true snow insects especial interest attaches to *Boreus nivalis* (Neuroptera). This insect is common in the northern states, but has hitherto been considered rare in the District of Columbia. On Christmas day, 1908, and at various times in January, 1909, it was found in abundance in Rock Creek Park. On the date first mentioned, two of this species were observed mating on the snow. On the same day large numbers of winter insects belonging to the Hymenoptera were gathered in the same locality. They represent the winter generation of two Cynipid gall flies, consisting of hermaphroditic individuals, whose larval stages are passed in the roots of oak trees. They oviposit in the young buds of the same tree, thus producing the galls on the leaves in which the summer generation develops. It appears essential, according to observations by Dr. E. A. Schwarz and others, that the ovipositing be done as soon as the buds show the first signs of life in spring. It takes place therefore about the end of February as a rule. In view of this, it seems surprising that the insects should have been found at so early a date as December 25, almost two months prior to the first budding of the leaves.

The difficulties attached to any studies whereby the winter generations of these species might be connected with the corresponding summer generations have thus far proved almost insuperable, and as a consequence no definite correlation exists as yet. For the present the individuals of the winter generation (which look quite unlike the summer generation) are referred to the genus

Andricus. Both *Andricus* species found have atrophied wings, those of the larger species being apparently perfect but about half the size necessary for flight. They thus possess a characteristic also found in *Boreus*. In the male of the latter, however, the wing remnants are of an imperfect and strangely aberrant type.

Mr. M. B. Waite exhibited a Jonathan apple having a peculiar decay. The specimen represented a lot which had been shipped from Colorado to Los Angeles, California, kept there in cold-storage, and then sent to Washington for diagnosis. Three species of apple rot fungi found in the decayed spots were considered secondary since most of the decayed areas were free from fungi or bacteria. The discolored areas, often in the form of a band around the apple, were firm in texture, light brown in color, and extended to a moderate depth in the flesh of the apple. The cells in the discolored areas were collapsed and ruptured, thus coinciding with frost injury. The damaged area was concluded to be due to freezing, or, since the apple stands freezing, to the peculiar conditions of thawing out after freezing.

Dr. H. M. Smith announced and commented upon the transfer of the administration and personnel of the federal fur-seal service to the Bureau of Fisheries.

Dr. B. W. Evermann reported an observation made by his brother, A. M. Evermann, near Burlington, Indiana, showing that fox squirrels sometimes feed upon the seeds of the cocklebur (*Xanthium strumarium*). The observation was made January 19 when snow covered the ground. The squirrels carried the burr to a log at the edge of a field and there got at the kernels by gnawing away one side.

He also reported the capture of a barn owl in Carroll County, Indiana, in December, 1908. This species had not been previously recorded from that county.

The regular program consisted of the following four papers:

Bee Diseases: E. F. PHILLIPS.

The honey bee, *Apis mellifera*, is subject to several specific diseases which are well recognized among practical bee keepers. The causes of all of them are not fully understood. Two of these attack the bee in its embryonic stages and are now designated American foul brood and European foul brood. They attack the bee just about the time that pupation begins and the colony is depleted because as the adult bees die from natural causes there are not enough bees emerging

to replace them. The cause of American foul brood has by inoculation experiments been determined to be *Bacillus larvæ*. This organism grows well only on a medium prepared by mashing healthy bee larvæ and sterilizing by filtration. Fifteen minutes of boiling is required to kill the spores of the bacillus. The cause of European foul brood is not known. There are other maladies of the brood and of the adult bee. The methods of treatment and means of spread were discussed.

Federal Control of Fisheries in International Waters: B. W. EVERMANN.

He discussed briefly the questions of federal control of migratory birds, of migrating fishes, of inter-state waters and of international waters. Attention was called to the valuable work which the Hon. George Shiras, III., has done, and is still doing, in calling attention to the power of the government in matters such as these which experience has demonstrated can not be properly handled by the respective states. When a member of Congress Mr. Shiras introduced two or three bills providing for federal control of migratory birds and fishes, and one providing for federal control of inter-state waters.

On April 11, 1908, a convention was entered into between the United States and Great Britain according to the terms of which uniform regulations will be provided governing the fisheries on the United States and Canadian sides of our northern boundary. The special International Fisheries Commission appointed under the treaty is now drawing up its report which must be submitted to the respective governments by June 3.

This report, it is understood, will contain a complete system of regulations for the fisheries in all international waters between the United States and Canada.

A Remarkable Flight of Bats in Luzon: HUGH M. SMITH.

He presented notes on a remarkable flight of small bats observed by him near Montalban, Luzon, P. I., on December 31, 1907. At 5.40 P.M. a solid column of bats began to emerge from a large cave about 1,200 feet above the Mariquina River. The bats flew rapidly in a straight, unbroken, closely-packed line for fifteen minutes, and disappeared over a mountain range in the direction of Manila without a single bat having left the column. American engineers at the place reported that this flight had occurred at practically the same time each day during the two years they had been there; and from other sources it

was learned that the same thing had been observed for at least thirty years.

A Visit to the Bat Cave in Luzon: PAUL BARTSCH.

He described the cave from which came the flight of bats referred to by the preceding speaker. The cave is a large one. Its main entrance is about 35 feet high and 25 feet wide, and difficult of access. A short passage connects the entrance with the central dome which has a diameter of about 150 feet and height of about 200 feet and perforates the mountain top. From this chamber passages open in various directions, frequently expanding into large rooms, some of which have wonderful stalagmites and stalactites, while others are simply glazed with a glistening lime deposit. An hour and a half was spent going from chamber to chamber and the native guide stated that he might continue for half a day without retracing his steps. Bats of several species were seen flitting about or clinging to the wall of the cave everywhere, but not enough to make a hundredth part of the swarm seen on the night of the last of December, 1907. Owing to the failure of the bat flight the previous night (July 4, 1908) the party had expected to find dead bats in the cave, believing that some epidemic might have killed them. This seemed the probable solution since on their previous visit the party had been assured that the bats had never been known to fail to make their appearance at a certain hour for many years. Careful search of the floor which was richly covered with guano, failed to reveal any dead individuals, and the whereabouts of the immense flight remains a mystery at present.

M. C. MARSH,

Recording Secretary

THE CHEMICAL SOCIETY OF WASHINGTON

THE 188th meeting of the Washington Chemical Society was held at the Cosmos Club on Thursday, February 11, 1909, at 8 P.M. President Walker presided, the attendance being 62. Eleven new members were added to the roll and two resignations were announced. J. M. Bell, of the Bureau of Soils, was appointed chairman of the committee on communications and M. X. Sullivan, of the Bureau of Soils, chairman of the entertainment committee. Arrangements were announced to hold the annual smoker at the Riggs House on Thursday, February 18. The following papers were presented:

"The Formation of Gluconic Acid by the Olive Tubercle Organism and its Physiological Function," by C. L. Alsberg.

"The Chemical Constituents of Oil of Erigeron and Wild Sage," by Frank Rabak.

"China Wood Oil," by E. W. Boughton.

J. A. LE CLERC,
Secretary

THE ANTHROPOLOGICAL SOCIETY OF WASHINGTON

At the 428th regular meeting of the Society, held at the Cosmos Club February 2, 1909, the following program was presented:

A Newly Discovered Siouan Dialect: DR. JOHN R. SWANTON.

Dr. Swanton visited the small remnant of Tunica Indians living close to Marksville, La., in November, 1908, for the purpose of correcting and amplifying the linguistic material recorded by Dr. Gatschet over twenty years ago. In the course of his investigations he had the good fortune to find a single survivor of an Indian tribe formerly living on the Yazoo River and known from French accounts as Offogoula. A sufficient vocabulary was obtained to show that the language spoken by them was not Muskogean, as had hitherto been supposed, but a Siouan dialect related to those of the Biloxi and the eastern Siouan tribes. It is peculiar in substituting *f* for *s* in many situations and *te* for *y* in others. The proper name of the tribe is Ofo, and probably has nothing to do with Choctaw ofe, "dog," as has hitherto been supposed.

Exhibition of Ethnographic Specimens by Members of the Society.

Dr. I. M. Casanowicz exhibited a silver lamp with eight burners used by the Jews in the Hanuga ceremony, the origin of which was explained at some length. This lamp is the property of Ephraim Benguiat, of New York. Dr. Casanowicz also showed a design representing a globe made of the book of Ecclesiastes in Hebrew characters in a single line.

Mr. Edwin P. Upham, of the Smithsonian Institution, exhibited and gave the place of origin of a series of stone scrapers and a series of stone axes. A general examination and discussion followed on the part of the members of the society.

JOHN R. SWANTON,
Secretary

THE BIOLOGICAL AND GEOLOGICAL SECTION OF THE ACADEMY OF SCIENCE AND ART OF PITTSBURG

At a regular meeting of the section on February 2, Mr. F. G. Clapp spoke on the "Influence

of Geological Structure on the Occurrence of Oil and Gas." Mr. Clapp briefly discussed the "anticlinal theory" of White and Orton and indicated the other factors which must always be considered in connection with it in order to make determinations of practical value. The following generalizations were made in regard to the fields of southwestern Pennsylvania and northern West Virginia:

1. All conditions being favorable, the accumulations of oil and gas do show a definite relation to the geologic structure.

2. With but few exceptions the greatest elongation of the pools is approximately parallel to the axes of the folds.

3. When both oil and gas are present in a stratum of sandstone, they are distributed according to their densities, the oil in the lower and the gas in the higher portion of the layer.

4. When oil and salt water are present the oil generally occurs in the part of the stratum lying directly above the water level.

5. When salt water is absent the oil may occur at the bottom of the syncline, or may be part way up the anticlinal slope.

6. Oil may occur on a "structural bench," where the dip of a stratum changes from gentle to steep.

7. Gas occurs mainly near the crests of anticlinal folds.

8. It occurs, however, in greatest volume in certain portions of the anticlinal crests which take the form of structural "domes."

9. Gas occurs in volume also at many widely scattered points, due to local changes in the dip and texture of the rocks.

The unconformity at the base of the Pottsville formation was briefly described, and the statement made that in certain fields it has a decided influence on the relation existing between the position of the oil and gas deposits and the geological structure as determined by the surface rocks. In general the interval between the surface rocks and the deeper oil and gas "sands" diminishes toward the north and west, and this change frequently shifts the axes of the anticlines and synclines in the deeper sands a fraction of a mile from the position of the same axes in the surface formations. Other changes in the intervals between the various sands must be taken into account in locating oil or gas deposits.

PERCY E. RAYMOND,
Secretary